Homewood Mountain Resort Development Water, Gas, and Electric Energy Use Projection

For:
Homewood Mountain Resort
5145 West Lake Boulevard
Homewood, California 96143

By:
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I. Introduction

A. Beaudin Ganze Consulting Engineers, Inc. (BGCE) performed an analysis of the utility service impacts expected from the proposed build-out at the Homewood ski resort in Homewood, CA. To complete our analysis, we reviewed the Homewood Resort Hotel and Residential Program dated July 30th, 2007, performed field surveys of existing site conditions, buildings, and systems, and researched historical building energy consumption data. In the following report sections, each utility is discussed in detail and the anticipated demand and usages are shown.

B. Seasonal Operation schedules, operating capacity percentages, yearly weather, and human behavior are all factors that can greatly alter the energy source demand and usage for a building. In addition unknown program portions of the project (s/a Food and Beverage Services, Housekeeping/Laundry Services, Spa/Fitness areas, etc.) can vary greatly in their contribution to overall energy source demand and usage. For the purposes of this study, industry standard data appropriate for the building type and use was utilized; however actual energy source demand and use may vary considerably from those estimates provided herein.

C. Our analysis of building areas and use is based on the July 30, 2007 project program by Hill Glasier and can be found through the Appendices included at the end of this report.

II. Water

A. Demand Estimation:

1. Building Demand: To calculate the anticipated building water demand for the project, we estimated likely quantities of fixtures expected in each part of the project. Appendix A shows the quantity of each fixture assumed. Utilizing standard Fixture Unit Loadings from the 2001 California Plumbing Code, we estimated the total fixture unit count and separate demands of the North Base, South Base, and Mid-mountain facilities. We also assumed a 25% safety factor in our calculations to account for the unknown. Appendix B shows the results of this. The summary is follows:
   a) North Base: 6,850 Fixture Units, 860 GPM CW Demand
   b) South Base: 8,000 Fixture Units, 980 GPM CW Demand
   c) Mid Mountain Facility: 200 Fixture Units, 90 GPM CW Demand

d) Development Total: 15,000 Fixture Units, 1,730 GPM

2. Site Demand: In addition to water demand from the building development, water will be used for snowmaking on the mountain. Homewood Mountain Resort plans to use water from Quail Lake for snowmaking, the backup source is assumed to be city water. The estimated water demand for snowmaking, confirmed with Terry Weltmer, snowmaking manager of Homewood Mountain Resort, is 3,500 GPM based on the latest planned snowmaking program.

B. Usage Estimation (GPD)

1. Building demand: To calculate the building daily water usage for the project, we used the 1997 Uniform Plumbing Code daily usage standards. Estimates were calculated based on are use, room and occupancy type, and meals per day. A 25% factor of safety was added when calculating the daily cold water demand. Appendix C shows the result of this analysis. The summary of our results is as follows:
   a) North Base**:** 44,700 GPD
   b) South Base: 22,000 GPD
   c) Mid Mountain Facility: 3,750 GPD
   d) Development Total: 70,400 GPD

2. Site Demand: The snowmaking system has the potential for the largest water use. Assuming snowmaking operation 8 hours a day at full flow, an additional 288,000 GPD could be consumed. We recommend this estimation be reviewed by the snowmaking consultant.

III. Sanitary Sewer

A. Demand Estimation:

1. Building Demand: To calculate the anticipated building sanitary sewer flow demand, we used our estimates of fixture quantities presented in Appendix A and their respective fixture unit loading per the 2001 California Plumbing Code similar to water. We assumed a 25% safety factor for estimation purposes. Our results are shown in Appendix B and are summarized below:
   a) North Base: 6,405 Drainage Fixture Units (DFU), 805 GPM
   b) South Base: 7,520 DFU, 927 GPM

c) Mid Mountain Facility: 150 DFU, 80 GPM
d) Development Total: 6,900 DFU, 1,650 GPM

2. In addition to the sewage flow demand created by the building development, parking drainage and pool backwash may also create additional sanitary sewer flow. These additional flows are assumed to be negligible compared to the rest of the project.

B. Sanitary Sewage Discharge

1. The daily sanitary sewer flow will be near the daily building cold water usage as detailed above.
   a) North Base**:** 44,700 GPD
   b) South Base: 22,000 GPD
   c) Mid Mountain Facility: 3,750 GPD
   d) Development Total: 70,400 GPD

IV. Gas

A. Demand Estimation:

1. Likely sources of gas consumption will be appliances, space heating, water heating, Pool heating, Ventilation air, and snowmelt. To predict the project gas demand we considered each one of these items separately for each of the resort areas. Appendix D summarizes each of the expected demands. Gas demand analysis assumed the following:
   a) Gas appliance quantities are as shown in Appendix A. Appliance consumption rates are as recommended by the 2001 CPC.
   b) Space peak heating gas consumption rate is 18 Btuh/sq.ft.
   c) Water peak heating gas consumption rate is 12 Btuh/sq.ft.
   d) Pool Heating gas consumption is based on uncovered, winter-time use.
   e) Snowmelt areas were assumed to be 6,000 sq.ft. prorated by square footage to various parts of the development. Energy input rate to snowmelt systems is assumed to be 200 Btuh/sq.ft.
   f) Appliance and Altitude Combustion efficiencies of 80%.
   g) 10% safety factor

2. Our results for gas demand are as follows:
   a) North Base – 83,400 MBH
   b) South Base – 83,000 MBH

c) Mid Mountain Facility – 3,300 MBH
d) Development Total – 154,000 MBH

B. Usage Estimation

1. In order to estimate annual consumption of gas a month by month analysis was completed for each gas use in each part of the development (Appendix E). In this analysis the following was used:
   a) Annual heating degree data from the state of California for the town of Tahoe City, CA to determine monthly gas consumption for space heating.
   b) Hours of appliance operation per month as shown in Appendix E.
   c) 50% of the daily water usage was assumed to be hot water.
   d) The mid-mountain building will not be operated during the summer months.

2. The Annual gas consumption is summarized here:
   a) North Base: 632,000 therms.
   b) South Base: 402,000 therms.
   c) Mid Mountain Facility: 30,500 therms.
   d) Development Total: 1,064,000 therms.

V. Electricity

A. Demand Estimation

1. Industry standard data for watts/sq.ft. were applied to each area on the project to calculate the expected electrical demand. Appendix F shows the load in each respective area of the project. Our study has estimated the following electrical demand for each building area on the project:
   a) North Base – 9.02 Megawatts(MW)
   b) South Base – 6.8 MW
   c) Mid-mountain – 250 kW
   d) Development total – 16 MW

2. Existing electrical demand data for the past two years was obtained from the utility company. The maximum site demand over the past couple of years was 1.6 MW. Most of this demand was due to ski lift operation. This 1.6 MW will still occur in addition to the building demands mentioned above.

B. Electrical Usage

1. Industry standard data for annual kWh/sq.ft. were applied to each area on the project to calculate the expected electrical demand. Appendix G shows the load in each respective area of the project. Our study has estimated the following electrical usage for each building area on the project:
   a) North Base – 14,417,000 kWh
   b) South Base – 6,528,000 kWh
   c) Mid-mountain – 741,000 kWh
   d) Development total – 43,374,000 kWh

2. Existing electrical usage data for the past two years was obtained from the utility company. The average annual resort energy usage was 1,220,000kWh. Again, we attribute most of this usage to ski lift operation. This usage will occur in addition to the building usages mentioned above.

C. On-site generation study

1. BGCE, Inc. completed an alternative energy study for micro-hydro turbine power systems on the mountain streams. We estimated the Madden and Ellis Creek systems could generate 589,000 kWh during three months of operation. This amount of power is estimated to be 1.4% of the developed resort's annual energy usage. This may seem trivial, but the annual power requirements of the eleven, 5,000 sq.ft. single family homes is estimated to be 856,000kWh. Therefore, just by operating three months a year, the Madden and Ellis systems could provide 68% of the annual electrical energy consumption for the eleven new homes.

2. Other potential uses of energy include, but are not limited to, the following:

   a) Homewood's renovation plan, by 2017, will have chairlifts requiring approximately 1,850 kW when running at full capacity. It is estimated that Homewood Mountain Resort demands 11,100 kWh per day to run all the chairlifts at full capacity. That being said, the proposed micro-hydro turbine generation systems could generate enough energy in a year to power all chairlifts at Homewood Mountain Resort for 53 days.

b) The systems will generate enough energy to power 65 average US homes for a year.

c) The systems will generate enough energy for 4% of the North Base annual electrical demand, or for 9% of the South Base annual electrical demand, or 79% of the Mid-Mountain Base annual electrical demand.

d) The systems will generate enough energy to power a 25,000 square-foot retail space for 200 8-hour days.

3. The systems will generate enough energy to power the named applications for the provided time, however the power generated must be used, or sold back to Sierra Pacific Power Company, as it is generated and cannot be stored. Therefore, since the streams will be reaching their peak flow in the spring and early summer months, it is unfair to assume that the energy generated can be used to power chairlifts in the early winter months, power buildings in the fall or early winter months, or power other sources at any time other then immediately as the energy is generated.

4. The optimal flow in the streams for micro-hydro generation occurred only in the Madden and Ellis systems for 3 months of the years in which data was provided. Depending on the seasonal snowfall, as well as the weather, power could potentially be generated for up to 6 months in the Madden and Ellis systems. However the amount of power generated in the additional time frame can not accurately be estimated as the flow data provided did not show potential for micro-hydro generation.

Plumbing Fixture and Gas Appliance Assumed Quantities

			Plumbing Fixture Quantity											Gas Fixture Quantity					
	Quantity	Approx area (sq.ft)	Tank Water Closets	FV Water Closets	Lavatories	Showers	Shower/Tub Combos	Clothes Washers	Dishwasher	Kitchen Sink	Bar Sink	Service Sinks	Hose Bibbs	Resd. FP	Comm FP	Dryers	Ranges	Ovens	BBQs
North Base																			
Hotel Building		*194,722*																	
Standard King Guest Room	34	572	1		2	1	1				1			1					
Double Queen Guestroom	12	609	1		2	1	1				1			1					
Executive Suite Guestroom	2	1144	3		4	2	1	1	1	1				2		1	1	1	
Presidential Suite Guestroom	2	1716	3		4	2	1	1	1	1				2		1	1	1	
One Bedroom Suites (Sold)	40	1144	2		3	1	1						1	2					
One Bedroom Lockoff (Sold)	40	572	1		2	1	1						1	1					
Guestroom Support Areas	1	27582										2							
F&B (Bar and Restaurant)	1	4980									4		2		2		18	6	4
Function Space	1	4487		6	6														
Lobby Areas	1	2001																	
Retail Areas	1	2581								4	4		4						
Fitness/Spa Area	1	12001		8	12	6	4				2	1	4		4				
public circulation	1	3091																	
Administrative	1	2945																	
Food and Bev BOH	1	3930							4	10	4	4	4						
Function Support	1	755		4	4														
General Service & Security	1	2000																	
Employee Facilities	1	2765		4	4		4					1							
Housekeeping/Laundry	1	4135						20				2				10			
Maintenance	1	2000										2	2						
Mechanical Areas	1	3350											6						
Boh circulation	1	4376																	
Hotel Exterior Areas	1	10627											16						
Condos		*40297*																	
One Bedroom Units	10	1100	2		2	1	1	1	1	1	1		1	1		1	1	1	
Two Bedroom Units	36	1650	3		4	2	2	1	1	1	1		1	2		1	1	1	
Three Bedroom Units	20	2200	4		6	3	3	1	1	1	1		1	3		1	1	1	
Four Bedroom Units	6	2750	5		8	4	4	1	1	1	1		1	4		1	1	1	
Common Area	1	32597		4	8	2	2	2				2	4		2	2	1	1	3
Skier Services	1	41596		16	16		2			6	3	2	4		2		12	4	
Retail Areas	1	25000		4	4					4	4		4						
Parking Area	1	364512											16						
North Subtotal		**789,327**	**416**	**46**	**694**	**308**	**308**	**98**	**80**	**100**	**139**	**16**	**218**	**340**	**10**	**88**	**107**	**87**	**7**
South Base																			
Residential																			
One Bedroom Units	16	1100	2		2	1	1	1	1	1	1		1	1		1	1	1	
Two Bedroom Units	48	1650	3		4	2	2	1	1	1	1		1	2		1	1	1	
Three Bedroom Units	38	2200	4		6	3	3	1	1	1	1		2	3		1	1	1	
Four Bedroom Units	18	2750	5		8	4	4	1	1	1	1		2	4		1	1	1	
Single Family Homes	11	5000	6		8	4	4	2	2	1	2		4	4		2	2	2	1
Managers housing	1	1500	3		4	2	2	1	1	1	1		2	2		1	1	1	
Assisstant Manager housing	1	1200	3		4	2	1	1	1	1	1		2	2		1	1	1	
Employee Apartments	20	850	1		2	1	1	1	1	1	0		1	1		1	1	1	
Common area	1	57331		4	8	2	2	2				2	4		2	2	1	1	3
Skier Services (incl 2000 kitchen)	1	4420		6	6				4	10	2	2				2	6	4	2
South Parking	1	67200											12						
South Subtotal		**433,551**	**510**	**10**	**746**	**368**	**367**	**166**	**168**	**163**	**146**	**4**	**260**	**366**	**2**	**168**	**171**	**169**	**16**
Mid-Mountain																			
Maintenance Area	1	7830										2	4						
Lodge Areas (incl 1800 kitchen)	1	7000		8	8				4	10	4				4		6	6	
Circulation	1	2886																	
Mechanical	1	200								10	4	2	4						
Mid-Mountain Subtotal		**17916**	**0**	**8**	**8**	**0**	**0**	**0**	**4**	**20**	**8**	**4**	**8**	**0**	**4**	**0**	**6**	**6**	
TOTALS		**1,240,794**	**926**	**64**	**1448**	**676**	**675**	**264**	**252**	**283**	**293**	**24**	**486**	**706**		**256**	**284**	**262**	**23**

Fixture Unit Estimate, 2001 CPC

	Quantity	CW FU/each	Waste FU/each	CW FU Total 2001 CPC	Waste FU total 2001 CPC
North Base					
Tank Water closet	416	2.5	3	1040	1248
FV Water Closets	46	8	6	368	276
Lavatories	694	1	2	694	1388
Showers	308	2	2	616	616
Shower/Tub Combos	308	4	2	1232	616
Clothes Washers	98	4	3	392	294
Dishwasher	80	1.5	2	120	160
Kitchen Sink	100	1.5	2	150	200
Bar Sink	139	2	2	278	278
Service Sinks	16	3	3	48	48
Hose Bibbs	218	2.5	0	545	0
25% future/safety				1371	1281
Sub-total				**6854**	**6405**
South Base					
Tank Water closet	510	2.5	3	1275	1530
FV Water Closets	10	8	6	80	60
Lavatories	746	1	2	746	1492
Showers	368	2	2	736	736
Shower/Tub Combos	367	4	2	1468	734
Clothes Washers	166	4	3	664	498
Dishwasher	168	1.5	2	252	336
Kitchen Sink	163	1.5	2	244.5	326
Bar Sink	146	2	2	292	292
Service Sinks	4	3	3	12	12
Hose Bibbs	260	2.5	0	650	0
25% future/safety				1605	1504
Sub-total				**8024**	**7520**
Mid Mountain Facility					
Tank Water closet	0	2.5	3	0	0
FV Water Closets	8	8	3	64	24
Lavatories	8	1	2	8	16
Showers	0	2	2	0	0
Shower/Tub Combos	0	4	2	0	0
Clothes Washers	0	4	3	0	0
Dishwasher	4	1.5	2	6	8
Kitchen Sink	20	1.5	2	30	40
Bar Sink	8	2	2	16	16
Service Sinks	4	3	3	12	12
Hose Bibbs	8	2.5	0	20	0
25% future/safety				39	29
Sub-total				**195**	**145**
Total Mountain Demand:				**15073**	**14070**

* CW FU count for FV water closets varies depending on number in local. RE: 2001CPC

Daily Water Use Based on 1997 UPC Recommended Values					
	Quantity	Approx area (sq.ft)	GPD/Unit	Quantity	Total GPD
North Base					
Hotel Building					
Standard King Guest Room	34	572	30		1020
Double Queen Guestroom	12	609	30		360
Executive Suite Guestroom	2	1144	30		60
Presidential Suite Guestroom	2	1716	30		60
One Bedroom Suites (Sold)	40	1144	30		1200
One Bedroom Lockoff (Sold)	40	572	30		1200
F&B (Bar and Restaurant)	1	4980	10/meal	200*	2000
Function Space	1	4487	25/person	100**	2500
Lobby Areas	1	2001	.1/sq.ft.		200.1
Retail Areas	1	2581	.1/sq.ft.		258
Fitness/Spa Area	1	12001	50/person	50**	2500
Food and Bev BOH	1	3930	25/person	20**	500
Function Support	1	755	25/person	20**	750
Employee Facilities	1	2765	10/person	50	500
Housekeeping/Laundry	1	4135	50/washing	150***	7500
Boh circulation	1	4376	25/person	10**	250
Condos					
One Bedroom Units	10	1100	30		300
Two Bedroom Units	36	1650	60		2160
Three Bedroom Units	20	2200	90		1800
Four Bedroom Units	6	2750	120		720
North Common Areas	1	32597	.1/ft^2		3259.7
North Base Skier Services	1	41596	0.1/sq.ft		4160
North Base Retail	1	25000	0.1/sq.ft.		2500
North Base Total:					**35758**
South Base					
South Base Residential					
One Bedroom Units	16	1100	30		480
Two Bedroom Units	48	1650	60		2880
Three Bedroom Units	38	2200	90		3420
Four Bedroom Units	18	2750	120		2160
Single Family Homes	11	5000	90		990
Managers housing	1	1500	42		42
Assisstant Manager housing	1	1200	42		42
Employee Apartments	20	850	42		840
South Base common area	1	57331	.1/ft^2		5733
South Base skier Services (incl 2000 kitchen)	1	4420	10/meal	100**	1000
South Base Total:					**17587**
Mid mountain Facility					
Maintenance Area	1	7830			0
Lodge Areas (incl 1800 kitchen)	1	7000	10/meal	300**	3000
Circulation	1	2886	0		0
Mechanical	1	200	0		0
Mid Mountain Total:					**3000**
25% Future/Safety					**14086**
Mountain Total:					**70431**

*Estimated number of meals per day
**Estimated Occupancy
***Usage based on estimated laundyr cycles daily

Estimated Maximum Gas Demand			
	Quantity	Btu/h each	MBH Total
North Base			
Residential Fire Places	340	22,000	7,480
Commercial Fire Places	10	50,000	500
Gas Dryer	88	35,000	3,080
Range	107	65,000	6,955
Oven	87	40,000	3,480
BBQs	7	30,000	210
Space Heating	789,327	18/sq.ft. avg	14,208
Water Heating	789,327	12/sq.ft.	9,472
Pool Heating			1,530
Kitchen MUA			650
Snow Melt			984
North Base Total:			**48,549**
South Base			
Residential fireplaces	366	22,000	8,052
Commercial fireplaces	2	50,000	100
Gas Dryer	168	35,000	5,880
Range	171	65,000	11,115
Oven	169	40,000	6,760
BBQ	16	30,000	480
Space Heating	433,551	18/sq.ft. avg	7,804
Water Heating	433,551	12/sq.ft.	5,203
Pool Heating			2,044
Snowmelt			850
Kitchen MUA			400
South Base Total:			**48,287**
Mid Mountain			
Commercial Fire Places	4	50,000	200
Range	6	65,000	390
Oven	6	40,000	240
Space Heating	17916	25/sq.ft. avg	448
Water Heating	17916	15/sq.ft.	269
Kitchen MUA			384
Mid Mountain Total:			**1,931**
10% Future/Safety			**9,877**
Total Gas Output			**98,767**
Total Gas Input Demand			**154,324**

Estimated Maximum Gas Usage

				Therms/month												
	Peak Demand	Quantity/MBH	Hours/month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Remarks
North Base																
Residential Fire Places	22,000	340	6,800	1496	1496	1496	1496	1496	1496	1496	1496	1496	1496	1496	1496	Assumed 40 minitues per day per fireplace
Commercial Fire Places	50,000	10	2,400	1200	1200	1200	1200	1200	1200	1200	1200	1200	1200	1200	1200	Assumed 8 hours per day per fireplace
Gas Dryer	35,000	88	2,728	955	955	955	955	955	955	955	955	955	955	955	955	Assumed 1 hour per day per dryer
Range	65,000	107	1,658	1078	1078	1078	1078	1078	1078	1078	1078	1078	1078	1078	1078	Assumed 1/2 hour per day per range
Oven	40,000	87	1,345	538	538	538	538	538	538	538	538	538	538	538	538	Assumed 1/2 hour per day per oven
BBQs	30,000	7	217	65	65	65	65	65	65	65	65	65	65	65	65	Assumed 1 hour per day per BBQ
Heating Degree Days				*1184*	*986*	*980*	*777*	*558*	*313*	*143*	*174*	*324*	*586*	*891*	*1153*	
Space Heating		14,208		68089	56702	56357	44683	32089	18000	8224	10006	18632	33699	51239	66306	
Water Heating		9,472		7200	7200	7200	7200	7200	7200	7200	7200	7200	7200	7200	7200	Assumed 1/2 the CW daily usage for 3/4 month
Pool Heating	1,530			459	382	380	301	216	121	55	67	126	227	345	447	
Kitchen MUA	650		240	1560	1299	1291	1024	735	412	188	229	427	772	1174	1519	
Snow Melt	984			944	944	450	220						220	450	944	
North Base Total:				**83583**	**71859**	**71010**	**58760**	**45572**	**31065**	**20999**	**22835**	**31717**	**47450**	**65740**	**81748**	
South Base																
Residential fireplaces	22,000	366	7,320	1610	1610	1610	1610	1610	1610	1610	1610	1610	1610	1610	1610	Assumed 40 minitues per day per fireplace
Commercial fireplaces	50,000	2	496	248	248	248	248	248	248	248	248	248	248	248	248	Assumed 8 hours per day per fireplace
Gas Dryer	35,000	168	5,040	1764	1764	1764	1764	1764	1764	1764	1764	1764	1764	1764	1764	Assumed 1 hour per day per dryer
Range	65,000	171	2,650	1723	1723	1723	1723	1723	1723	1723	1723	1723	1723	1723	1723	Assumed 1/2 hour per day per range
Oven	40,000	169	2,535	1014	1014	1014	1014	1014	1014	1014	1014	1014	1014	1014	1014	Assumed 1/2 hour per day per oven
BBQ	30,000	16	480	144	144	144	144	144	144	144	144	144	144	144	144	Assumed 1 hour per day per BBQ
Heating Degree Days				*1184*	*986*	*980*	*777*	*558*	*313*	*143*	*174*	*324*	*586*	*891*	*1153*	
Space Heating		7,804		37690	31387	31196	24734	17763	9964	4552	5539	10314	18654	28363	36704	
Water Heating		5,203		3600	3601	3602	3603	3604	3605	3606	3607	3608	3609	3610	3611	Assumed 1/2 the CW daily usage for 3/4 month
Pool Heating	2,044			613	511	507	402	289	162	74	90	168	303	461	597	
Snowmelt	850			1062	1063	1064	1065	1066	1067	1068	1069	1070	1071	1072	1073	
Kitchen MUA	400		240	960	799	795	630	452	254	116	141	263	475	722	935	
South Base Total:				**50428**	**43864**	**43667**	**36938**	**29677**	**21555**	**15919**	**16949**	**21925**	**30616**	**40732**	**49422**	
Mid Mountain																
Commercial Fire Places	50,000	4	960	480	480	480	480	0	0	0	0	0	0	480	480	Assumed 8h per day in winter
Range	65,000	6	1,116	725	725	725	725	0	0	0	0	0	0	725	725	Assumed 6h per day per fireplace in winter
Oven	40,000	6	1,196	478	478	478	478	0	0	0	0	0	0	478	478	assumed 6h per day in the winter
Heating Degree Days				*1184*	*986*	*980*	*777*	*558*	*313*	*143*	*174*	*324*	*586*	*891*	*1153*	
Space Heating		448		2157	1796	1786	1416	1017	570	261	317	590	1068	1623	2101	
Water Heating		269		375	375	375	375	0	0	0	0	0	0	375	385	
Kitchen MUA	256		240	614	512	509	403	0	0	0	0	0	304	462	598	
Mid Mountain Total:				**4830**	**4367**	**4353**	**3878**	**1017**	**570**	**261**	**317**	**590**	**1372**	**4145**	**4768**	
Mountain Total				**138,842**	**120,091**	**119,030**	**99,575**	**76,266**	**53,190**	**37,179**	**40,101**	**54,232**	**79,438**	**110,617**	**135,938**	

Electrical Demand Estimate

	Quantity	Approx area (sq.ft)	W/sq.ft.	kW
North Base				
Hotel Building				
Standard King Guest Room	34	572	12	233
Double Queen Guestroom	12	609	12	88
Executive Suite Guestroom	2	1144	12	27
Presidential Suite Guestroom	2	1716	15	51
One Bedroom Suites (Sold)	40	1144	13	595
One Bedroom Lockoff (Sold)	40	572	13	297
Guestroom Support Areas	1	27582	11	303
F&B (Bar and Restaurant)	1	4980	10	50
Function Space	1	4487	10	45
Lobby Areas	1	2001	10	20
Retail Areas	1	2581	16	41
Fitness/Spa Area	1	12001	16	192
public circulation	1	3091	10	31
Administrative	1	2945	13	38
Food and Bev BOH	1	3930	20	79
Function Support	1	755	12	9
General Service & Security	1	2000	13	26
Employee Facilities	1	2765	13	36
Housekeeping/Laundry	1	4135	12	50
Maintenance	1	2000	10	20
Mechanical Areas	1	3350	15	50
Boh circulation	1	4376	10	44
Hotel Exterior Areas	1	10627	8	85
North Base Condos				
One Bedroom Units	10	1100	18	198
Two Bedroom Units	36	1650	18	1069
Three Bedroom Units	20	2200	18	792
Four Bedroom Units	6	2750	18	297
North Common Areas	1	32597	12	391
North Base Skier Services	1	41596	12	499
North Base Retail	1	25000	18	450
Parking Area	1	364512	8	2916
North Base Subtital				**9024**
South Base				
South Base Residentia;l				
One Bedroom Units	16	1100	18	317
Two Bedroom Units	48	1650	18	1426
Three Bedroom Units	38	2200	18	1505
Four Bedroom Units	18	2750	18	891
Single Family Homes	11	5000	20	1100
Managers housing	1	1500	11	17
Assisstant Manager housing	1	1200	11	13
Employee Apartments	20	850	12	204
South Base common area	1	57331	11	631
South Base skier Services (incl 2000 kichen)	1	4420	20	88
South Parking	1	67200	8	538
South Base Subtotal				**6729**
Mid mountain Facility				
Maintenance Area	1	7830	10	78
Lodge Areas (incl 1800 kitchen)	1	7000	20	140
Circulation	1	2886	10	29
Mechanical	1	200	15	3
mid-mountain subtotal				**250**

TOTALS	**16002**

Annual Electrical Usage Estimate

	Quantity	Approx area (sq.ft)	kWh/sq.ft.	kWh
North Base				
Hotel Building				
Standard King Guest Room	34	572	20	388960
Double Queen Guestroom	12	609	20	146160
Executive Suite Guestroom	2	1144	20	45760
Presidential Suite Guestroom	2	1716	20	68640
One Bedroom Suites (Sold)	40	1144	16	732160
One Bedroom Lockoff (Sold)	40	572	16	366080
Guestroom Support Areas	1	27582	20	551640
F&B (Bar and Restaurant)	1	4980	147	731562
Function Space	1	4487	38	168936
Lobby Areas	1	2001	20	40020
Retail Areas	1	2581	43	111602
Fitness/Spa Area	1	12001	68	811508
public circulation	1	3091	38	116376
Administrative	1	2945	52	153435
Food and Bev BOH	1	3930	116	455094
Function Support	1	755	38	28426
General Service & Security	1	2000	52	104200
Employee Facilities	1	2765	20	55300
Housekeeping/Laundry	1	4135	35	145593
Maintenance	1	2000	35	70420
Mechanical Areas	1	3350	35	117954
Boh circulation	1	4376	38	164756
Hotel Exterior Areas	1	10627		
North Base Condos				0
One Bedroom Units	10	1100	16	176000
Two Bedroom Units	36	1650	16	924858
Three Bedroom Units	20	2200	16	685080
Four Bedroom Units	6	2750	16	256905
North Common Areas	1	32597	16	507535
North Base Skier Services	1	41596	38	1566089
North Base Retail	1	25000	43	1081000
Parking Area	1	364512	10	3645120
North Base Subtital				**14417169**
South Base				
South Base Residentia;l				
One Bedroom Units	16	1100	16	274032
Two Bedroom Units	48	1650	16	1233144
Three Bedroom Units	38	2200	16	1301652
Four Bedroom Units	18	2750	16	770715
Single Family Homes	11	5000	16	856350
Managers housing	1	1500	16	23355
Assisstant Manager housing	1	1200	16	18684
Employee Apartments	20	850	16	264690
South Base common area	1	57331	16	892644
South Base skier Services (incl 2000 kichen)	1	4420	50	221000
South Parking	1	67200	10	672000
South Base Subtotal				**6528266**
Mid mountain Facility				
Maintenance Area	1	7830	35	275694
Lodge Areas (incl 1800 kitchen)	1	7000	50	350000
Circulation	1	2886	38	108658
Mechanical	1	200	35	7042
Mid-mountain subtotal				**741394**
TOTALS				**43373657.64**